
Model Performance Parity Measures for Facilities-Based Competition

Item 33: ALI Database Update Accuracy

What: Measures the proportion of accurate ILEC inputs into the ALI database for ILEC and CLEC customers.

Why: The ILEC must enter the exact data received from the CLEC. If manual entries are made, the ILEC must ensure that no mistakes are made during the process of copying or keying in data.

Item 34: Selective Router Update Accuracy

What: Measures the proportion of accurate entries into the selective router database for ILEC and CLEC customers.

Why: The ILEC must enter the exact data received from the CLEC. If manual entries are made, the ILEC must ensure that no mistakes are made during the process of copying or keying in data.

Item 35: MSAG System Access Response Time

What: The Master Street Access Guide (MSAG) is a list of addresses served by a particular emergency services agency. This item measures how long it takes the ILEC to provide the MSAG to a CLEC upon request.

Why: Carriers require access to the MSAG in order to obtain the proper address citation form so that it can be correctly entered into the ALI database. Therefore, if the ILEC does not timely furnish the MSAG to the CLEC, the CLEC will be delayed in entering properly formatted data in the ALI database.

Directory Listings

Item 36: Directory Listings Database Update Completion Interval

What: Measures the average time interval the ILEC takes to update its directory listing database for a new ILEC or CLEC customer, or when some information regarding such a customer (address or phone number or name)

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has changed.

Why: Mandatory ILEC reporting of comparative data will encourage the ILEC to enter the numbers of CLEC customers into the database in a reasonable time frame.

Item 37: Directory Listings Database Update Interval

What: Measures the percent of the time that the ILEC completes updates of information regarding ILEC and CLEC customers into the directory listings database within the same time interval. Most ILECs have committed to 24 hours as a reasonable time frame to allow this process.

Why: This information must be collected in addition to item 36 to prevent a situation where the average interval is the same between an ILEC and a CLEC, but the ILEC nonetheless delays entry for some CLEC customers' for much longer periods of time than it delays information entry for its own customers. Delayed updates inconvenience customers and are not acceptable to them.

Item 38: Directory Listings Electronic Interface Availability

What: Measures the percentage of the time that an electronic interface allows the ILEC and the CLECs to input customer information directly into the directory listings database.

Why: Mandatory ILEC reporting will ensure that CLECs have an equal ability to transmit information about CLEC customers electronically to the directory listings database.

THE MINIMAL BURDEN TO THE ILECS OF REPORTING ON COMPARATIVE PERFORMANCE DATA IS OUTWEIGHED BY THE COMPETITIVE BENEFITS

The burden on the ILEC of reporting on TCG's proposed performance measures should be minimal. The ILECs' automated systems should already create the objective data needed to compare performance measures,¹¹ particularly for provisioning and maintenance.¹² Even in those cases when an ILEC does not already record one of TCG's proposed performance measures, requiring the ILEC to begin recording and reporting such data is necessary in order to ensure that the ILEC satisfies the performance parity principle. The expansion of effective local exchange competition giving consumers choice as quickly as possible is well worth any additional ILEC effort required.

The ILEC is free to use manual or electronic means to satisfy its performance parity requirements. In all likelihood, however, as competitors' volume increases, the ILEC will be unable to accomplish parity without the cost-saving use of electronic interfaces between ILEC and CLEC Operations Support Systems (OSS). Should the ILEC continue to rely on manual means such as faxing, the ILEC must provide quality control and personnel management sufficient to achieve parity where ILEC measures exist, and sufficient to ensure parity in consumer service where such measures do not now exist. Should the ILEC choose to use electronic interfaces rather than manual means to satisfy its parity requirements, then facilities-based CLECs must be able to access the ILEC OSS as efficiently as the ILEC accesses them. TCG's upcoming white paper will deal with OSS electronic interfaces as a means of achieving performance parity.

¹¹ See Affidavit of Michael J. Friduss on Behalf of the Antitrust Division of the Department of Justice, Evaluation of the U.S. Department of Justice, *In re Application of SBC Communications Inc. et al.* Pursuant to Section 271 of the Telecommunications Act of 1996 to Provide In-Region, InterLATA Services in the State of Oklahoma, CC Docket No. 97-121 (May 16, 1997).

¹² For example, ILECs have automated data acquisition systems (DAS) that count minutes and report on them in various ways. One output of the DAS is Trunking Service Reports. The DAS includes Trunk Service Systems (TSS), Total Network Data Systems (TNDS) and Engineering and Data Acquisition System (EADAS).

CONCLUSION

It is the **outcome of performance parity** that is required by the Act. Performance parity measures must be adopted immediately, even while recognizing that over time the measures may be expanded, reduced or changed with changing needs. To the extent feasible, measures should be comparable (if not identical) for all ILECs. This will reduce ILEC opportunities to “game” the regulatory process and facilitate state regulatory enforcement of interconnection agreements between ILECs and CLECs. TCG hopes these Model Performance Parity Measures for facilities-based competition will begin the process of creating a nationally uniform set of performance parity measures.

*For further information, contact Gail Garfield Schwartz at 718-355-2892
or e-mail to schwartz@tcg.com,*

Model Performance Parity Measures for Facilities-Based Competition

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Measuring Performance Parity:

Equal Risk, Fair Results

March 1998



Teleport Communications Group
One Teleport Drive, Staten Island, New York 10311

Introduction

Under the 1996 Telecommunications Act, each competitive local exchange carrier (“CLEC”) is entitled to interconnection with each incumbent local exchange carrier (“ILEC”)¹ that is at least equal to what the ILEC provides for itself.² TCG refers to this legal standard as the “Performance Parity Principle.” In two earlier White Papers, TCG discussed two critical aspects of the Performance Parity Principle.³ In *The Performance Parity Principle*, TCG detailed the statutory obligations of the ILECs to provide interconnection and unbundled elements to CLECs that is at least equal to that which the ILECs provide to themselves. In *Model Performance Parity Measures for Facilities-Based Competition*, TCG identified the 38 ILEC interconnection and unbundling functions for which the ILEC must demonstrate its compliance with the “at least equal” standard. In this paper, TCG proposes a fair and efficient approach to analyzing ILEC performance data - an approach that minimizes the enforcement burdens on public utility commissions, CLECs, and ILECs.

“Stare and Compare”

To enforce performance parity, it is necessary to compare the performance of the ILEC for itself, its performance for each interconnecting CLEC, and its performance for other entities. Under the act, the ILEC cannot discriminate nor treat itself or its customers any better than it treats an interconnecting

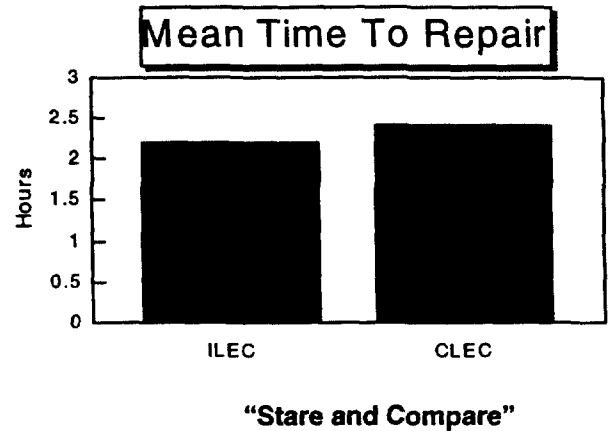
¹ Under certain circumstances, rural carriers are exempt from these obligations.

² 47 U.S.C. §251(c)(2)(c) and 47 U.S.C. § 251(c)(3).

³ *The Performance Parity Principle*, July 1997 and *Model Performance Parity Measures for Facilities-Based Competition*, November 1997.

local competitor. Any deviation from performance parity is illegal and subjects the ILEC to civil penalties.

The question is: How should the ILEC demonstrate easily and efficiently that it has met the Performance Parity Principle? A simple “stare-and-compare” test of the ILEC’s performance



for itself and for each CLEC would seem to indicate whether or not the ILEC is complying with the law. For example, if the ILEC’s mean time to repair (“MTTR”) for itself was 2 hours 15 minutes, and for a CLEC it was 2 hours 20 minutes, then the CLEC could legitimately claim that its treatment was not “at least equal” and that the ILEC was violating the law.

One might challenge this simple comparison, however, as not *statistically* sound. That is, the difference of five minutes in performance might be no more than a random occurrence. Consider 100 tosses of a coin, for example. If the coin landed “heads” 54 times and “tails” 46 times, one would not conclude that the coin was biased in favor of “heads.” The deviation from the 50-50 split is within the range of results that might occur by chance. Similarly, if in measuring Performance Parity the ILEC’s performance for its own customers was only “marginally” better than its performance for the CLEC’s customers, the ILEC could reasonably argue that the variation was simply a chance occurrence and not statistically significant.

A strict interpretation of the Telecommunications Act leaves no doubt that, chance or not, the ILEC is obligated to provide “at least equal” service, even if that means taking extra steps to eliminate or to minimize the possibility of chance occurrences. However, TCG recognizes that under certain circumstances, a certain degree of variability is difficult to control and that it may not necessarily be harmful. Furthermore, consistent strict interpretation of the “at least equal” standard could induce the CLECs and ILECs to litigate issues that have minor practical impact on their businesses. This would certainly impose costs on the CLECs and divert resources from investment in competitive infrastructure. State public utility commissions would also incur unnecessary costs adjudicating such disputes. To avoid unnecessary costs and policing, TCG proposes a simple statistical approach that captures the simplicity of “stare-and-compare” while allowing for flexible, reasonable, and statistically valid compliance with the “at least equal” standard.

Statistical “Helpers”

Before describing our approach, we must digress briefly into a discussion of statistics. Statistics help analysts draw a picture of reality based on partial information. In statistics, one rarely observes the entire universe of events that one is trying to evaluate. In the case of evaluating a coin for fairness, one records only a finite number of flips, whether it is 10 flips or a billion flips, or any number of flips in between. No matter how many times one flips the coin it is still a finite number, far less than the infinite flips that are possible. That finite number is called a *sample* and the infinity of flips is called the *population*. Because we seldom observe the entire population, statistics

allow analysts to draw a reasonable conclusion about the entire population based on a sample from that population.

There is a catch, however: coming to a conclusion about the population based on a sample is an inherently risky exercise. The sample may not represent the underlying population, perhaps leading the statistician to an incorrect conclusion. To minimize the risk of committing such an error, the statistician “hedges” by allowing for a certain amount of variability in the sample data before coming to a conclusion. The extent of that permitted variation will depend on the **risks of coming to the wrong conclusion** and it is the key to ensuring fair and proper enforcement of the Performance Parity Principle.

A statistician risks making two types of errors that are inherent in statistical analysis, and each is best explained in terms of the coin flip. First, there is the risk that the statistician might conclude that a coin was biased when, in fact, it was fair. Second, there is the risk that the statistician might conclude that the coin was fair when, in fact, it was biased. The challenge facing the statistician is how to balance the risks of these two types of errors. If the statistician is concerned with the first type of error, he or she will not conclude that the coin is biased unless the deviation from the 50-50 split is relatively large. On the other hand, if the statistician is more concerned with the second type of error, he or she will conclude that the coin is biased if the deviation from the 50-50 split is relatively small. The rest of this paper explores the means for determining the size of that deviation in a manner that **balances the interests of both CLECs and ILECs.**

Applying “Equal Risk” to Interconnection

In terms of interconnection, the sample data would be the number times the ILEC performed an operation for itself and for the CLEC during a specific time period (e.g., one month, one calendar quarter), while the population would be every possible instance of the operation that the ILEC might perform for itself and the CLEC for as long as the networks might be interconnected. Because we will never be able to observe the population of ILEC performance, the state commission or other enforcement body must rely upon statistical analysis to determine ILEC compliance with the law.

In doing so, the commission might make one of the two possible errors discussed above. First, based on the sample observations, the commission could conclude that the ILEC is not adhering to the Performance Parity Principle when, in fact, it is. The ILEC, of course, would like to minimize that possibility. Conversely, the commission could conclude that the ILEC is meeting the “at least equal” standard when, in fact, it is not. CLECs would like to minimize that possibility.⁴

As noted earlier, each type of error has a certain amount of risk associated with it. In the interest of fairness, therefore, TCG proposes that the deviation from the simple “stare-and-compare” be based on equalizing the risks associated with each type of error. That way, each carrier bears the same statistical risk of an erroneous conclusion counter to its own interest.

This approach is only marginally more complex than a simple “stare-and-compare” analysis: in the simple “stare-and-compare” case, the commission

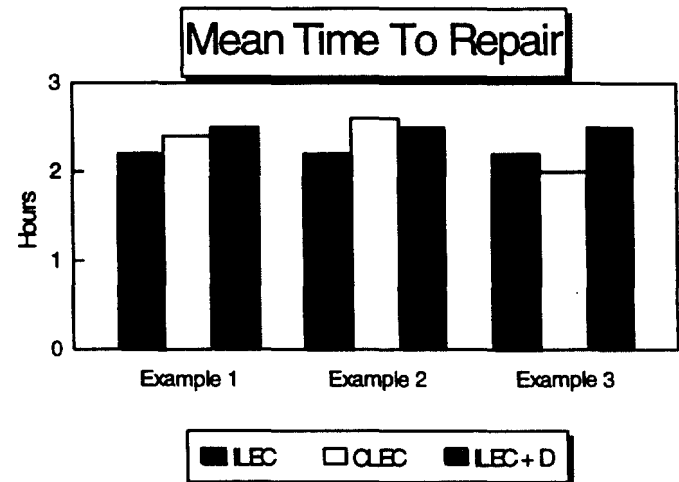
⁴ If a Commission is to err, it should err on the side of “strict enforcement.” The public interest is best served by the development of a vigorously competitive market, and that cannot happen if incumbent monopolists are permitted to abuse their market power.

would reject any performance that was not “at least equal” now it simply rejects any performance that is not equal by a specific amount, “D.”

Consider the following examples:

In general, so long as the top of the bar representing the performance provided to a CLEC is lower than the top of the “ILEC + D” bar, the CLEC is likely to be receiving “at least equal” treatment and the ILEC should be considered in compliance with the statute. If the bar representing the performance provided to a

CLEC is above the “ILEC + D” bar, then the CLEC is not receiving “at least equal” treatment and the ILEC is violating the statute. In Example 1, the simple “stare-and-compare” conclusion would be that the ILEC is violating the Performance



Parity Principle because the CLEC's MTTR exceeds the ILEC's. However, the difference in performance cannot be considered significant because it is less than the statistically valid value of D, as represented by the last bar in each cluster. Example 2 shows a clear cut case of the ILEC in violation of the standard, and Example 3 shows a clear cut case of the ILEC in compliance. Similar charts could be drawn for each of the 38 ILEC activities identified by TCG in *Model Performance Parity Measures for Facilities-Based Competition*.

The debate between the CLECs and the ILECs will focus on the value of “D.” The ILEC might argue that in “traditional” scientific inquiry, statisticians would be most concerned with falsely concluding that the ILEC is violating the law. Therefore, following such “tradition,” the risk associated with such a false conclusion is minimized and the risk associated with falsely concluding that they are in compliance is generally ignored. For example, one is usually reluctant to conclude that a coin is biased and, as noted earlier, one would not conclude that a coin was biased based on results of 54 heads and 46 tails. Indeed, using “traditional” parameters, one would not conclude the coin was biased in favor of heads unless it turned up heads at least 60 times out of 100 tosses.

Assuring parity with respect to Interconnection cannot be viewed as a subject to such “traditional” parameters, however. The stakes are too high. The potential harm to the public’s interest in a competitive market of concluding that the ILEC is complying with the performance parity principle when it is not, is as great or greater than any harm that could result from concluding that the ILEC is not complying when it is. **The risk of a monopoly perpetuating its market power by providing inferior interconnection threatens the public more than the risk of a competitor erroneously claiming that performance parity does not exist.** In terms of the coin toss analogy, even though we would not want to reject a fair coin incorrectly, we most certainly would not want to accept a biased coin incorrectly.

TCG’s proposal guards against both risks and recognizes the legitimate claims of both ILECs and CLECs. The ILEC does not want to be found in violation of the standard inaccurately and therefore would propose a large “D”. TCG does not want the ILEC to get away with poor performance, and

is justified by the Telecommunications Act in arguing that “D” should, in fact, equal zero. It makes eminent sense, therefore, to establish “D” such that **each party bears the same risk of an error against its interests.**

So, What is “D”?

The value of “D” depends on five factors: the number of times the ILEC performs the measured operation for itself and for the CLEC, the variability of the ILEC’s performance for itself and for the CLEC, and the CLEC’s definition of acceptable ILEC behavior. Of the five, only the last is within the explicit control of one of the parties, i.e., the CLEC.⁵ Under the statute the CLEC is entitled to performance that is “at least equal,” with no exceptions or qualifications. The extent to which the CLEC is willing to accept something other than “at least equal” is completely up to the CLEC. **In the event that the ILEC objects to the CLEC’s position and the issue is sent to arbitration, the arbitrator must select the CLEC’s position to comply with the Act.**

The formulas that calculate “D” may appear rather complex (like many statistical formulas), but in fact the calculations are easy to perform in a computer spreadsheet. In general, all else held constant, “D” tends to decline as the number of observations increase, tends to increase as the variability of the ILEC’s performance increases, and tends to decline as the CLEC-specified acceptable limit of ILEC performance for the CLEC approaches the ILEC’s performance for itself.

⁵ Theoretically, the ILEC may be able to control the variability of its performance for itself and for the CLEC but for statistical purposes we assume that it is not doing so.

Apples to Apples

The danger in any statistical analysis is that it might hide more than it reveals, and that danger certainly exists here. For example, a comparison of averages (such as the mean time to repair) could potentially mask great disparities within the data. The ILEC may be very quick to repair the unbundled loops of the CLEC's many low-volume (and low-revenue) customers, but very slow to repair the unbundled loops of the CLEC's high-volume (and high-revenue) customers. By treating the CLEC's largest customers poorly, the ILEC would hope to convince those customers that they should switch to the ILEC for service. If the ILEC's performance were simply measured by the two sample means, such anticompetitive behavior might go undetected.

The best way to discourage and to detect such anticompetitive behavior is to segment the data so that "apples-to-apples" comparisons can be made. That is, the ILEC's performance towards the CLEC's customers should be compared to the ILEC's performance towards its own similarly situated customers. Customer size and location are two of the obvious criteria for segmenting the data, but there may be others. In any event, steps must be taken to ensure proper analysis of all the data, including a calculation of "D" for each set of data.

Adding Depth and Perspective

As important as it is to evaluate the ILEC's performance each month, it would be a mistake to rely solely upon this "snapshot" of data as the definitive picture of the state of interconnection. To obtain a more complete picture, the ILEC's performance must be examined in its entirety and over time. Otherwise, the ILEC might take advantage of the leeway afforded by

“D” by always providing inferior service to the CLEC but without violating the “Equal Risk” standard. To prevent the ILEC from turning the “Equal Risk” parameters for each measure or for each month into a license to hobble the CLEC systematically, the domain of the “Equal Risk” approach must expand to encompass two additional dimensions.

First, the ILEC’s performance should be examined *in toto* each month, not just measure by measure. Suppose, for example, that the ILEC’s performance during a particular month was better for itself than for the CLEC on 34 of the 38 measures, but never exceeded the “ILEC + D” bound (that is, 34 of the measures were similar to the bar chart in Example 1, above). Taken separately and in isolation, each measure would not lead to a conclusion that the ILEC was violating the law. But taken together, such evidence paints a rather clear picture of systematic ILEC malfeasance.

Second, the ILEC’s behavior should be tracked over time to detect any systematic attempts to mistreat CLECs. For example, suppose that over a period of ten months, the ILEC’s performance each month on a particular measure was never “at least equal” but also never exceeded the “ILEC + D” boundary (i.e., as in Example 1). Again, each month’s data examined individually would not reveal any ILEC transgression. Taken together, however, the monthly data indicate systematic violation of the Performance Parity Principle.

Swift Enforcement

The “Equal Risk” approach is useless unless the ultimate enforcement mechanism imposes significant penalties on the ILEC for failing to meet even

its relatively liberal standards.⁶ “Equal Risk” represents a concession by the CLEC that the ILEC’s poor performance might occasionally result from chance or statistical “noise.” Regulators must not hesitate, therefore, to impose appropriately severe penalties on the ILECs for *any* violation of the “Equal Risk” standards. Failure to impose swift justice will only encourage the ILECs to turn an equitable inch into a monopolistic mile.

Conclusion

ILEC compliance with the Performance Parity Principle is critical to the successful development of competition at all levels of the telecommunications industry. TCG’s “Equal Risk” approach provides regulators, ILECs, and CLECs with an efficient, fair, and valid way to measure ILEC performance. “Equal Risk” minimizes the cost to all parties, including regulators, by establishing reasonable enforcement standards that still discourage ILEC abuses. “Equal Risk” balances the interests of both the CLEC and ILEC so that each bears the same risk of being wrongly judged on the basis of statistics provided by the ILEC. And, “Equal Risk” is based on accepted statistical practices.

ILECs that are genuinely interested in facilitating local competition will embrace both the Performance Parity Principle and the reasonable statistical methods for measuring parity outlined in this paper. They have nothing to fear from close scrutiny of their performance and will earn the rewards inherent in ongoing and consistent compliance with the Performance Parity Principle. ILECs that are intent upon preserving their monopoly position will

⁶ See *Model Regulatory Procedures for the Enforcement of Interconnection Agreements*, November 1997.

oppose or seek to frustrate TCG's reasonable proposal as they have opposed all reasonable attempts to bring the benefits of competition to consumers of local telecommunications services. Such opposition reveals their true intentions and amply demonstrates the need for vigilance and severe penalties for failing to comply with the Performance Parity Principle. In both cases, "Equal Risk" will help ensure that justice is served in the pursuit of Performance Parity.

For further information, please contact:

Gail Garfield Schwartz at (718) 355-2892, or e-mail: schwartz@tcg.com.

Paul E. Cain at (718) 355-2255, or e-mail: cain@tcg.com

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